REMARKS

The amendment to this specification shown in Paragraph 1 above, listed under the heading of "Additional Paragraphs To The Specification," adds a cross reference to related applications.

The amendment to this specification shown in Paragraph 2 above, listed under the heading of "Additional Paragraphs To The Specification," is exactly the same as the amendment that was included in grandparent Application Serial No. 08/817,445, filed October 16, 1995, in a document entitled "Amendment To Office Action Dated November 12, 1999," which amendment was filed on May 12, 2000. Because the subject application is a continuation (once removed) of the grandparent application, Applicants repeat the amendments made to the grandparent application and adopt the reasons set forth in that amendment, which reasons are incorporated herein.

The amendments to this specification shown in Paragraph 3 above, listed under the heading of "Replacement Paragraphs To The Specification," removes a cross reference to related application, which was erroneously added to the original first sentence of the specification in a Preliminary Amendment dated December 18, 2001.

The amendments to this specification shown in Paragraph 4-15 above, listed under the heading of "Replacement Paragraphs To The Specification," are exactly the same as the amendments that were included in grandparent Application Serial No. 08/817,445, filed October 16, 1995, in a document entitled "Amendment And Response," which was filed on October 20, 1998. Because the subject application is a continuation (once removed) of the grandparent application, Applicants repeat the amendments made to the grandparent application and adopt the reasons set forth in those amendments, which reasons are incorporated herein.

Because this is a continuation (once removed) of grandparent Application Serial No.

08/817,445, filed October 16, 1995, applicants have filed drawings as originally filed in the grandparent application. Applicants have also filed formal drawings incorporating the changes made to the drawings, which changes are set forth in a document entitled "Proposed Changes To The Drawings," filed on October 20, 1998 in the grandparent application, which changes were accepted by the Examiner. Similarly, Figure 9 was added in the grandparent Application in the document mentioned above entitled "Amendment To Office Action Dated November 12, 1999," which amendment was filed on May 12, 2000. Accordingly, Figure 9 is included in the formal drawings submitted herewith.

Claims 1-21 are currently pending in the application. Claims 2-21 are cancelled by this second preliminary amendment, leaving only claim 1. Please base the filing fee on this one remaining claim. Additional new claims will be added by a third preliminary amendment shortly.

Applicants respectfully request entry of this second preliminary amendment prior to action on the merits. The Commissioner is hereby authorized to charge any additional fee which may be required for this application under 37 C.F.R. §§ 1.16-1.18, including but not limited to the issue fee, or credit any overpayment, to Deposit Account No. 23-0920. Should no proper amount be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 23-0920. A duplicate copy of this sheet(s) is enclosed.

Respectfully submitted,

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By

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February 12, 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)
Heinz et al.	)
	)
Serial No.: 10/025,155	)
	)
Filed: December 18, 2001	)
	)
For: ANTENNA CONTROL SYSTEM	)
	)
Primary Examiner: Not Yet Assigned	)
	)
Art Unit: Not Yet Assigned	)

A version of the amended paragraphs marked up to show all of the changes relative to the previous version of the paragraphs are shown below in accordance with 37 C.F.R. 1.121 (b)(1)(iii).

The paragraph on page 1 of the specification immediately following the heading entitled "The Technical Field" of the specification is shown marked up as follows:

> --[This is a continuation of Serial No. 09/713,614, filed November 15, 2000, which is a continuation of PCT National Stage application Ser. No. 08/817,445, filed April 30, 1997, which application(s) are incorporated herein by reference.] The present invention relates to an antenna control system for varying the beam tilt of one or more antenna. More particularly, although not exclusively, the present invention relates to a drive system for use in an antenna which incorporates one or more phase shifter.--

The fifth paragraph (fourth full paragraph) on page 6 is shown marked up as follows:

> Preferably the system includes a plurality of [antenna] <u>antennas</u> and the controller may adjust the downtilt for the plurality of [antenna] <u>antennas</u> and store the degree of downtilt of each antenna in memory.

The fourth paragraph (third full paragraph) on page 9 is shown marked up as follows:

Referring now to figure 4, operation of the phase shifter drive mechanism will be explained. Second portion 9 of phase shifter 1 is mounted to a carriage 22 which can move left and right. If carriage 22 is moved to the left first portions 14 and 15 of phase shifters 2 and 3 will be moved to the left via push rods 10 and 11. First portion 8 of phase shifter 1 may be moved relative to [phase shifter 9] second portion 9 of phase shifter 1 to vary the phase of signal supplied to phase shifters 2 and 3.

The first (a partial paragraph) on page 11 is shown marked up as follows:

the first embodiment except for the drive mechanism 30 employed, which is shown in figure 6.

The last paragraph (a partial paragraph) on page 11 is shown marked up as follows:

Operation of the drive means according to the second embodiment will now be described by way of example. Motor 41 may rotate shaft 31 in an anticlockwise direction, viewed from right to left along shaft [3] 31. Threaded member 37 is driven by second threaded

The third paragraph (second full paragraph) on page 12 is shown marked up as follows:

The conductivity of reed switch 43 is monitored so that the number of rotations, or part rotations, of shaft 31 may be monitored. If the motor continues driving shaft 31 until threaded member 34 abuts the lever of limit switch 45 then logic circuitry will only permit motor 41 to drive in the opposite direction. Likewise if threaded member 34 abuts the lever of limit switch 46 the motor 41 will only be permitted to drive in the opposite direction.

The first paragraph (a partial paragraph) on page 13 is shown marked up as follows:

Components of the drive mechanism 30 are preferably formed of plastics, where possible, to reduce intermodulation. Threaded members 34 and 37 preferably include plastic links to phase shifter 36 to reduce intermodulation.

The third paragraph (second full paragraph) on page 13 is shown marked up as follows:

FIG. 7 shows how motor 41, reed switch 43 and switches 45 and 46 are connected to lines 71, 72, 76 and 77 from an external controller. Lines 71, 72, 76 and 77 are sheathed by conduit 78. Lines 71 and 72 supply current to drive motor 41. Section 73 ensures that if threaded member 34 is driven to either the left-hand side limit or the right-hand side limit it can only be driven

in the opposite direction. In the position shown in FIG. 7, switch 45 directly connects line 71 to switch 46 via diode 74. In the position shown switch 46 connects line 71 to motor 41 via diode 75. This is the normal position of the switches when threaded member 34 is not at either extreme limit. When threaded member 34 is driven to the extreme left, for example, and actuates switch 45, then switch 45 open circuits the path via diode 74. Diode 74 allows current flow in the direction allowing motor 41 to drive to the left. Accordingly, when switch 45 is open, motor 41 can only drive in such a direction as to drive threaded member 34 to the right (i.e.: current in the direction allowed by diode 75).

The last paragraph on page 14 is shown marked up as follows:

The controller will sense that threaded member 34 is at its extreme right position as it will detect that reed switch 43 is not opening and closing. After a predetermined delay the controller may then provide a current in the opposite direction via lines 71 and 72 to motor 41 to drive it to the left. As the motor is driven to the left the controller will monitor the opening and closing of reed switch 43 to determine how far threaded member 34 has moved to the left. The controller will continue to move threaded member 34 to the left until reed switch 43 has opened and closed a predetermined number of times, corresponding to a desired angle of downtilt. Alternatively, threaded member 34 may be driven to the extreme left and then back to the right.

The first paragraph on page 15 (a full paragraph) is shown marked up as follows:

As shown in Figure 9, at [At] an antenna site a number of such panels 90 may be installed and controlled by a single controller 80 as shown in figure 8. The four wires 71, 72, 76, and 77 correspond to respective cable groups 78 to three such antenna panels. Controller 80 may be provided at the base of an antenna site to allow an operator to adjust the tilt of a plurality of antennas at ground level, rather than requiring a serviceman to climb up the antenna structure 92 and adjust each antenna manually. Alternatively, controller 80 may be a hand-held unit which can be plugged into a connector at the base of an antenna to adjust the antenna at a site.

The last paragraph (a partial paragraph) on page 16 is shown marked up as follows:

The up/down buttons may be used to select the desired array. The enter key will accept the selected array. To measure the actual angle of downtilt controller 80 drives a motor 41 of an array to drive member 34 to the right. Motor 41 is driven until threaded member 34 abuts switch 46. The controller

80 counts the number of pulses from reed switch 43 to determine how far threaded portion 34 has traveled. At the extreme right position the controller 80 determines and displays

The first paragraph (a partial paragraph) on page 17 is shown marked up as follows:

the angle of downtilt, calculated in accordance with the number of pulses connected from reed switch 43. The controller 80 then drives threaded member 34 back in the opposite direction for the same number of pulses from reed switch 43 so that it returns to the same position. The angle of downtilt for each antenna may be stored in memory of controller 80. This value will be updated whenever the actual angle of downtilt is measured in this way. The "measure tilt" function may not be used if the controller is locked.

The third paragraph (second full paragraph) on page 17 is shown marked up as follows:

The "enable array" function may be used to enable each array when installed. The controller 80 will be prevented from moving any array that has not been enabled. Controller 80 will record in memory which arrays have been enabled. The "disable array" function may be used to disable arrays in a similar manner.